

### **REMARKS/ARGUMENTS**

Claims 13-26 are currently pending in this application. Claims 1-12 have been cancelled as a result of the restriction requirement. Claim 13 has been amended. Claims 22-26 have been added. No new matter has been added through these amendments.

### **Rejections under 35 U.S.C. § 103**

Claims 13-16 and 18 were rejected as being unpatentable over US Patent 5,748,317 to Maris et al. in view of US Patent 6,426,232 to Litvak. In light of the amendments and arguments presented herein Applicants respectfully request reconsideration of this rejection as the combination of Maris and Litvak fail to define each feature of claim 13, as amended.

Claim 13, as amended, includes the feature of a sensor embedded in the wafer carrier, the sensor configured to detect heat energy emanating from a location on the metal layer due to the heat energy pulse, the sensor located to minimize reception of a reflected heat energy pulse from the defined heat energy pulse. Thus, the claimed invention does not evaluate the reflected radiation as Maris teaches. Maris requires that the reflected probe beam or pump beam be evaluated in order to arrive at the physical properties being measured (see Figure 10 and corresponding text, and Equations 5-11). Maris must detect the reflected beam in order to compare it to the input beam. The claimed invention as specified by claim 13, measures the temperature degradation over the surface of the wafer from the single pulse without detecting the reflected beam, since the reflected beam would cause an inaccurate measurement under the system of claim 13. Additionally, Maris requires a plurality of pulses, while the present invention utilizes a single pulse. Litvak does nothing to cure the deficiencies of Maris. Applicants respectfully submit that claim 13 is patentable over the

combination of Maris and Litvak for at least these reasons. Claims 14-16 and 18 depend from claim 13 and are patentable over the cited references for at least the above stated reasons.

Claims 13 and 17 was rejected as being unpatentable over US Patent 4,513,384 to Rosencwaig et al. in view of US Patent 6,426,232 to Litvak. The Applicants request that the Examiner reconsider this rejection in light of the amendments and arguments discussed below. Rosencwaig teaches a method for determining a thickness of layers on a substrate by analyzing thermal waves generated in a sample (see abstract). Referring to Figure 4, as cited by the Examiner, a piezoelectric transducer that is in contact with a surface of the sample, measures the thermal waves created by a laser beam focused on the sample. As amended, claim 13 detects the heat energy emanating from a location on the metal layer due to the heat energy pulse, and the sensor is located to minimize reception of a reflected heat energy pulse from the defined heat energy pulse. Thus, the sensor is not in contact with the sample. As a result, the Applicants respectfully disagree with the Examiner's assertion that one skilled in the art would have incorporated the system of Rosencwaig into a wafer carrier of Litvak. The piezoelectric unit of Rosencwaig simply could not function in a wafer carrier of a CMP system as there would be no contact between the wafer and the sensor. Accordingly, the Applicants respectfully request removal of the rejection of claim 13 and dependent claim 17 for at least these reasons.

Applicants further submit that claims 19-21 are allowable in light of the amendments and arguments discussed above.

Claims 22-26 have been added and are patentable over the cited references as none of the cited references disclose or teach the feature of an infrared sensor configured to detect heat energy emanating from a location on the metal layer caused by the heat energy pulse, such that the sensor is positioned to substantially eliminate reception of a reflected heat energy pulse from the defined heat energy pulse.

In view of the foregoing, Applicants respectfully submit that all of the pending claims are in condition for allowance. A notice of allowance is respectfully requested. In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 774-6921. If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. LAM2P437). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,  
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